

WHAT IS CLAIMED IS:

1. A method of effecting a positive flow of fluid through a first medical implement automatically upon disconnection of a second medical implement from a valve having a housing with an element therein for controlling the flow of fluid through said housing, said valve defining a fluid volume within said housing and said valve in communication with said first medical implement, comprising the steps of:

disconnecting said second medical implement from said valve;

moving at least a portion of said element to a position in which fluid flow through said valve to said second medical implement is prevented;

decreasing the fluid volume within said valve; and

forcing fluid from said housing towards said first medical implement.

2. The method in accordance with Claim 1, wherein said element comprises a resilient seal positioned in said housing, said seal having a passage therethrough and wherein said moving step comprises allowing said seal to expand to a position in which said passage therethrough is occluded.

3. The method in accordance with Claim 1, wherein a piston member is movably positioned within said housing of said valve and said decreasing step comprises moving said piston member.

4. The method in accordance with Claim 3, wherein said step of disconnecting comprises removing said first medical implement from a first end of said valve, and wherein said decreasing step comprises moving said piston towards said first end of said valve.

5. The method in accordance with Claim 1, wherein a member is positioned within said housing, said member arranged to increase said fluid volume in said housing when said first medical implement is connected to said valve, and wherein said step of decreasing the volume within said housing comprises the step of allowing said member to expand in volume.

6. The method in accordance with Claim 1, wherein a member is positioned within said housing and cooperates with said housing to form a chamber, and said step of decreasing the volume within said housing comprises the step of enlarging the volume of said chamber.

7. The method in accordance with Claim 1, wherein said element comprises a seal, and further including a piston movably positioned within said valve, said piston cooperating with said seal and housing to define said fluid volume, and wherein said step of decreasing the fluid volume comprises the step of moving said piston towards said seal.

8. A medical valve for controlling the flow of fluid between a first medical implement and a second medical implement, said valve comprising a body having a cavity in communication with said second medical implement and an opening adapted to receive said first medical implement, and a sealing element positioned within said body and movable between a first position in which said seal prevents fluid flow through said body and a second position in which fluid flow is permitted through said body, said cavity including a fluid space which automatically and reversibly increases in size when said first medical implement is connected to said valve and which contracts in size when said first medical implement is disconnected.

9. The medical valve in accordance with Claim 8, wherein said sealing element is a seal having a pre-slit passage therethrough, said passage occluded when said seal is in said first position.

10. The medical valve in accordance with Claim 8, wherein said sealing element comprises a piston movably mounted with respect to said body.

11. The medical valve in accordance with Claim 10, wherein a ledge is positioned within said cavity and said piston has a shoulder, said shoulder engaging said ledge when said piston is in said first position.

12. The medical valve in accordance with Claim 11, including means for biasing said piston into said first position.

13. The medical valve in accordance with Claim 12, wherein said means for biasing comprises a spring.

14. The medical valve in accordance with Claim 10, wherein said piston divides said cavity into a first fluid filled chamber and a second, air-filled chamber.

15. The medical valve in accordance with Claim 14, further including a vent through said body extending to said air-filled chamber.

SUB B3
16. The medical valve in accordance with Claim 10, wherein said piston has a head for engagement by said first medical implement, said head having a slanted surface.

10 17. The medical valve in accordance with Claim 14, wherein said piston includes a hollow recess in communication with said air-filled chamber.

SUB B4
18. The medical valve in accordance with Claim 8, wherein said opening is at a first end of said body, said body having a closed second end and a branch, said branch defining a branch passage leading from said cavity.

19. The medical valve in accordance with Claim 8, wherein said opening is at a first end of said body and said body includes a second open end.

20. The medical valve in accordance with Claim 8, further including a piston member movably positioned within said body.

21. The medical valve in accordance with Claim 20, further including means for biasing said piston member in the direction of said sealing element.

15 22. The medical valve in accordance with Claim 21, wherein said means for biasing comprises a spring.

SUB B5
23. The medical valve in accordance with Claim 21, wherein said means for biasing comprises a member cooperating with said body to define an air-filled chamber.

20 24. The medical valve in accordance with Claim 21, wherein said means for biasing comprises an air-filled member.

25. The medical valve in accordance with Claim 8, further including a diaphragm positioned within said cavity.

26. The medical valve in accordance with Claim 25, whereby said diaphragm divides said cavity into a first chamber and a second chamber, and further including a vent extending through said body to said second chamber.

27. A medical valve for controlling the flow of fluid between a first medical implement and a second medical implement, said valve comprising a body having a cavity in communication with said second medical implement and an opening adapted to receive said first medical implement, and a seal positioned within said body and movable between a first position in which said seal prevents fluid flow through said

body and a second position in which fluid flow is permitted through said body, said valve defining a fluid space and further including means connected to said body for reducing the fluid space within said valve when said first medical implement is disconnected.

5 28. The medical valve in accordance with Claim 27, wherein said means comprises an expanding resilient closed-cell member.

29. The medical valve in accordance with Claim 27, wherein said means comprises a piston.

10 30. The medical valve in accordance with Claim 27, wherein said means comprises an air-filled bladder.

31. The medical valve in accordance with Claim 30, wherein a vent leads through said body to said bladder.

32. The medical valve in accordance with Claim 27, wherein said means comprises a diaphragm.

15 33. The medical valve in accordance with Claim 29, wherein said piston has a passage therethrough.

34. The medical valve in accordance with Claim 27, wherein said opening is positioned at a first end of said body.

20 35. The medical valve in accordance with Claim 34, wherein said seal is positioned near said first end of said body and said cavity is defined by said body and said seal.

36. The medical valve in accordance with Claim 27, wherein said means is positioned within said cavity.

25 37. The medical valve in accordance with Claim 36, wherein said means divides said cavity into at least a first and a second chamber.

38. The medical valve in accordance with Claim 37, wherein one of said first or second chambers is air-filled.

30 39. A medical valve for controlling the flow of fluid between a first medical implement leading to a first site and second medical implement leading to a second site, said valve comprising a body having a cavity, said body having a first port for connection to said first medical implement and having a second port adapted to

receive said second medical implement, a seal connected to said body and movable between a first position in which said seal obstructs fluid flow through said body between said ports, and a second position in which fluid flow is permitted through said body, said valve defining a fluid space between said ports and further including means positioned within said body for reducing said fluid space within said valve when one of said medical implements is disconnected.

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